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58 Silver - 32 Copper-10 Palladium

Physical Properties of Bulk Solder

Solder Alloy Composition	58Ag32Cu10Pd (weight per cent)
Solidus temperature	824°C (1562°F)
Liquidus temperature	852°C (1652°F)
Density	10.06 kg/l
Yield strength	327 MPa
Tensile strength	374 MPa
Elongation	18%
Thermal conductivity	145W/(m.K)
Thermal Coefficient of Expansion	18.5 x 10^{-6} K^{-1} (estimate)
Electrical Conductivity	18.9x10^{6}/ Ω m
Electrical Resistivity	5.3 μΩ cm

Typical impurity levels for electronic grade/ vacuum tube grade are less then:
Pb: 0.002 Zn: 0.002 P : 0.020
Cd: 0.002 C : 0.005
Volatile elements each 0.002 % max.
Other elements each 0.005% max.
Total other elements 0.010% max.

AgCu-alloys are generally used to join, silver, copper and nickel base alloys in reducing or inert atmospheres or vacuum. They are also widely used to join metalized ceramics to metals in vacuum. This assumes reasonably-clean brazing surfaces or controlled atmosphere during the brazing cycle. If and when the components are slightly oxidized, a combination with higher temperatures and/or longer brazing temperatures is required.
Joint clearance is recommended at 0.002” - .005” (50-127μm).
During remelting joints on either copper- or silver-base alloys, the braze exhibits decreased fluidity and an increased remelt temperature, due to the solution of either silver or copper in the eutectic. Brazing time and temperature should be minimized to prevent excessive diffusion and erosion of the base metal.
AgCu-based filler materials have limited wetting ability on iron and/or nickel base alloys. The wetting it does have is derived primarily from its copper and palladium content. Both nickel and iron have practically no solubility in silver. The addition of palladium to the AgCu-alloy enables good wetting to Ni and Ni-alloys, Kovar, (low-) alloyed steels, tool steels and Stainless steels. It further prevents intermetallic building in the joint area